

WHAT IS CLAIMED IS:

1. A synthetic immunogen for inducing specific antibodies against GnRH comprising: a fusion peptide comprising a promiscuous helper T-cell peptide epitope and immunomimic peptide epitope or analogue thereof.
- 5 2. The synthetic immunogen of claim 1 wherein the promiscuous helper T-lymphocyte epitope is fused to the amino-terminus and/or carboxy-terminus of the immunomimic peptide epitope or analogue thereof.
3. The synthetic immunogen of claim 1 or 2 wherein the promiscuous helper T-lymphocyte epitope is fused to the immunomimic peptide by a spacer peptide.
- 10 4. The synthetic immunogen of claim 3 wherein the immunomimic peptide epitope comprises a whole or partial sequence of GnRH (SEQ ID NO: 1).
5. The synthetic immunogen of claim 3 wherein the promiscuous helper T-lymphocyte epitope comprises a nearly universal epitope sequence.
- 15 6. The synthetic immunogen of claim 5, wherein the promiscuous epitope is selected from the group consisting of a sequence of TT, DT, Malarial Protein CSP, and MSP-F.
7. A method of inducing an immune response against GnRH in an animal comprising administering to the animal, a therapeutically effective amount of the immunogen as claimed in claim 1.
- 20 8. The synthetic immunogen of claim 1 wherein the promiscuous helper T-lymphocyte epitope is fused to the aminotermius of the immunomimic peptide epitope or analogue thereof.
9. The synthetic immunogen of claim 2 wherein the promiscuous helper T-lymphocyte epitope is fused to the amino-terminus and/or carboxy-terminus of the immunomimic peptide epitope or analogue thereof through a spacer peptide.
- 25 10. The synthetic immunogen of claim 9 wherein the spacer peptide is selected from the group consisting of Gly-Pro-Ser-Leu (SEQ ID NO: 5 in the Sequence Listing), Ser-Ser-Gly-Pro-Ser-Leu (SEQ ID NO: 6 in the Sequence Listing), and Ser-Ser-Gly-Pro-Ser-Leu-Lys-Leu (SEQ ID NO: 7 in the Sequence Listing).

11. The synthetic immunogen of claim 1 wherein the fusion peptide is selected from the group consisting of the peptide defined by SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, or SEQ ID NO: 20.

5 12. The synthetic immunogen of claim 1 wherein the fusion peptide is selected from the group consisting of one or more than one peptide defined by SEQ ID NO: 10 and SEQ ID NO: 11.

13. A method of inducing an immune response against GnRH in an animal subject, comprising administering to the animal a therapeutically effective amount of the immunogen comprising one or more than one synthetic immunogen as defined by the sequence of SEQ ID NO: 10 and/or 11.

10 14. A method of producing an anti-GnRH immune response-inducing fusion peptide immunogen comprising:

preparing a chimeric peptide wherein a GnRH immunomimic peptide epitope is fused to an immunogenic helper T-lymphocyte epitope through a spacer peptide so as to form a peptide chimera as defined by any of SEQ ID NO: 9 through SEQ ID NO: 20.

15 15. A pharmaceutical injectable composition comprising the synthetic immunogen as claimed in claim 1, and a pharmaceutically acceptable carrier.

16. A pharmaceutical injectable composition comprising the synthetic immunogen as claimed in claim 12, and a pharmaceutically acceptable carrier.